



City of Phoenix Energy Update

Solar Power 101

August 11, 2009

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Overview

- City of Phoenix Sustainability Policy/Goals
- Energy Management Program/Initiatives
- Alternative Fuel Program/Initiatives
- Recycling
- Renewable Energy Strategies
- Stimulus Plan
- Proposed Utility-Scale Solar Project
- Greenbuild 2009





Sustainability Policy/Goals

Renewable Energy and Greenhouse Gas Reduction Policy Goals

- Renewable Energy Target: 15% renewable energy by 2025 (solar, landfill gas and digester gas)
- Climate Action Plan (GHG Reduction Goal): Reduce GHG emissions for City operations to 5% below the 2005 levels by 2015



Energy Management/Conservation

Annual City energy consumption: 700M kWh

- Equivalent to powering 48,000 homes
- Over 2,500 utility accounts
- Typical facility power breakdown
 - HVAC 45%
 - Lighting 33%
 - Plug Loads, Other 22%



Energy Management/Conservation

Energy Management Program

- Over 30 years; over \$75M in cost avoidance/savings
- Goals:
 - Eliminate inefficient energy usage
 - Develop cost effective alternatives
 - Increase employee awareness
 - Provide example for community



Energy Management/Conservation

Major Initiatives:

- Energy Efficient Lighting
- HVAC Retrofits/Change-Outs
- Energy Efficient Motors
- Variable Speed Drives (VSD's)
- Energy Management Systems
- Downtown District Cooling
- Summer Peak Use
- Facilities Review Committee
- LEED/Green Buildings





Renewable Energy

- Solar Photovoltaic (PV)
 - 9 Projects (PCC latest)
- Landfill Gas-to-Energy
- Bio-Mass
 - Partnership with Water Services Department
- Phoenix' Renewable Energy Goal
 - FY2009-10 2.5%
 - FY2014-15 5.0%
 - FY2019-20 10.0%
 - FY2024-25 15.0%





Rio Salado Habitat Solar Irrigation Project



Valley Forward 2008
Environmental Excellence
Award



Alternative/Clean Fuels

- Strong commitment to alternative/clean fuels
- \$33 million investment (infrastructure and vehicles)
- Over 4,090 alternative/clean fuel vehicles Citywide
- 9.9M gallons of alternative/clean fuel used last year
- Approximately 53% of total fuel used by City





Current Alternative Fuel Efforts

- Fuel/Fleet diversification
- LNG Refuse Truck Pilot
- ADEQ/Exhaust emissions control devices





Phoenix Recycles

- 20th year for residential recycling program with over 350,000 households participating
- *Recycling Changes Everything* marketing campaign, May 2007
- Bag Central Station
- RecycleBank – Pilot Program 2009





Bag Central Station

- Public/Private Partnership with AFMA & ARA
- Voluntary program implemented December 2007
- 2009 EPA Award (Bag Central Station and Innovative Household Hazardous Waste)



where plastic bags belong.



Bag Central Station



2009 EPA Award





RecycleBank

- Voluntary program for residents
- Program rewards participants with points for goods and services
- Points can be donated to other local organizations





Sustainability/Green Vision

Green Phoenix Initiative/ASU and Phoenix

- Greener Neighborhoods
- Solar City
- Urban Mobility
- Green Your Home and Business
- Desert Hydroscape
- Public Buildings LEED Retrofit
- Central City Green
- Discovery Triangle Smartscape



Sustainability/Green Vision

Green Phoenix Initiative/ASU and Phoenix

- Renewable Energy
- Efficient City Lights
- Hometown Agriculture
- Canalscape
- Beyond Sustainable Schools
- Phoenix Regional Desalt
- Transportation-ICT Synergy
- Urban Riparian Waterways Rehab
- Envision Sustainable Phoenix



ARRA Update

DOE Grant: EECBG Formula - \$15.2M

- Energy Efficiency & Conservation Strategy
- Municipal Building Energy Efficiency and Solar Energy
- Phoenix Green Incentives
- Traffic Signal Optimization
- LED Traffic Signal Conversion
- Building Benchmarking and Energy Efficiency Outreach & Marketing Campaign



ARRA Update

EPA Grant: Diesel Emission Reduction -
\$800,000 awarded

- Retrofit 45 trucks
- Equipment
- Partial funding for HLA refuse truck



ARRA Update

DOE Grant: Clean Cities – Petroleum Reduction Technologies Projects Pending

- Total application amount: \$5,125,343
- Phoenix portion: \$1,129,632
- Alternative fuel refuse trucks
- Alternative fuel infrastructure
- Award announcement September 2009



ARRA Update

Other Funding Opportunities

- EECBG Competitive Grant
 - Green Rail Corridor
- State Appliance Rebate
- Solar America Cities
- Alternative Fuel Infrastructure



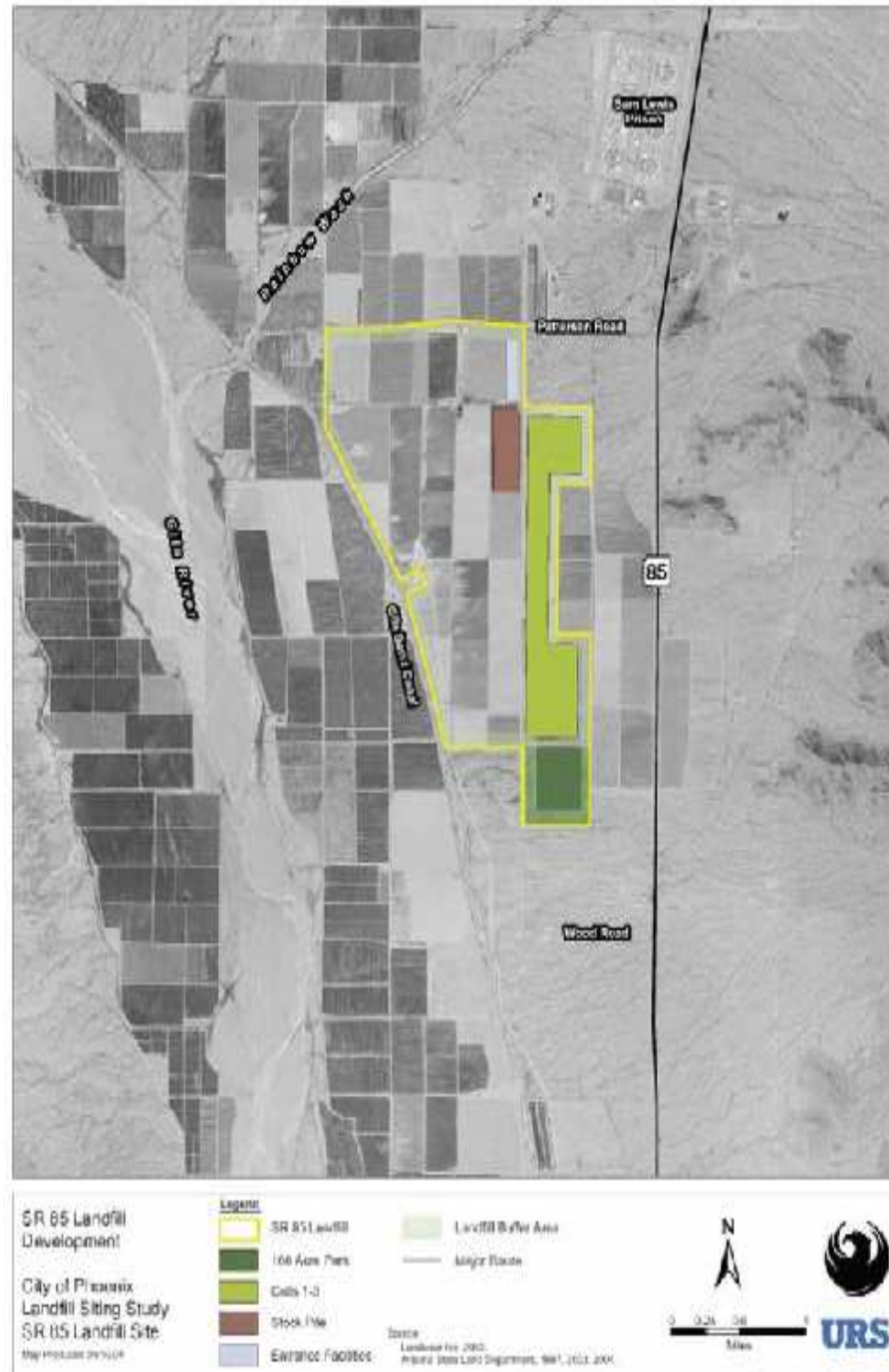
Proposed Utility-Scale Solar Project at SR-85 Landfill

- Available land in utility corridor
- Area NTE 1,200 acres
- Projected plant size: 150- 200 MW
- Dry cooling technology
- Open to all solar technology options and may include landfill gas technology options



Proposed Utility-Scale Solar Project at SR-85 Landfill

- Third party development with options for City
- Opportunities for research, development and education linkages
- 4 proposals under review
- Recommendation to City Council - Fall 2009





Greenbuild 2009

November 11-13, 2009

United States Green Building Council (USGBC)
International Conference and Expo:

- Phoenix Convention Center
- Over 30,000 attendees
- LEED workshops, educational sessions
- Green Streets Fall Festival
- Green Building tours of local sites
- Green Phoenix Event –

November 13, Downtown Phoenix



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